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CLAIMS:

What is claimed is:

1   1.   A method of correcting errors in a data storage
2   medium having a plurality of tracks, comprising:
3   decoding a first quantity of data that is encoded
4   using an error-correcting code and that spans multiple
5   tracks from the plurality of tracks;
6   writing to the correction history record to indicate
7   which of the multiple tracks contained errors when the
8   first quantity of data was decoded; and
9   decoding a second quantity of data that is encoded
10   using the error-correcting code and that spans the
11   multiple tracks, wherein a limited number of the multiple
12   tracks are decoded as erasures in accordance with the
13   correction history record.

1   2.   The method of claim 1, further comprising
2   establishing a correction history record.

1   3.   The method of claim 1, wherein the error correcting
2   code is a Bose-Chauduri-Hocquenghem (BCH) code.

1   4.   The method of claim 3, wherein the Bose-Chauduri-
2   Hocquenghem code is a Reed-Solomon code.

1   5.   The method of claim 1, wherein the data storage
2   medium is magnetic tape.

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1 6.   The method of claim 1, further comprising:

2   calculating a weight for each of the multiple

3 tracks, based upon the correction history record; and

4   selecting the limited number of the multiple tracks

5 to be treated as erasures based upon the calculated

6 weight for each of the multiple tracks.

1 7.   The method of claim 5, further comprising:

2   examining the correction history record to determine

3 a number of times errors have been found on each of the

4 multiple tracks; and

5   calculating the weight for each of the multiple

6 tracks as a function of the number of times errors have

7 been found on each of the multiple tracks.

1 8.   A computer program product in a computer-readable

2 medium, for correcting errors in a data storage medium

3 having a plurality of tracks, comprising instructions

4 for:

5   decoding a first quantity of data that is encoded

6 using an error-correcting code and that spans multiple

7 tracks from the plurality of tracks;

8   writing to the correction history record to indicate

9 which of the multiple tracks contained errors when the

10 first quantity of data was decoded; and

11   decoding a second quantity of data that is encoded

12 using the error-correcting code and that spans the

13 multiple tracks, wherein a limited number of the multiple

14 tracks are decoded as erasures in accordance with the

15 correction history record.

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1   9.   The computer program product of claim 8, comprising

2   additional instructions for:

3   establishing a correction history record.

1   10.   The computer program product of claim 8, wherein the

2   error correcting code is a Bose-Chauduri-Hocquenghem

3   (BCH) code.

1   11.   The computer program product of claim 10, wherein

2   the Bose-Chauduri-Hocquenghem code is a Reed-Solomon

3   code.

1   12.   The computer program product of claim 8, wherein the

2   data storage medium is magnetic tape.

1   13.   The computer program product of claim 8, comprising

2   additional instructions for:

3   calculating a weight for each of the multiple

4   tracks, based upon the correction history record; and

5   selecting the limited number of the multiple tracks

6   to be treated as erasures based upon the calculated

7   weight for each of the multiple tracks.

1   14.   The computer program product of claim 13, comprising

2   additional instructions for:

3   examining the correction history record to determine

4   a number of times errors have been found on each of the

5   multiple tracks; and

6   calculating the weight for each of the multiple

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7   tracks as a function of the number of times errors have

8   been found on each of the multiple tracks.

1   15.   A data processing system for correcting errors in a

2   data storage medium having a plurality of tracks,

3   comprising:

4   a bus system;

5   a processing unit having at least one processor and

6   connected to the bus system;

7   memory connected to the bus system; and

8   a set of instructions in the memory, wherein the

9   processing unit executes the set of instructions to

10   perform the acts of:

11   decoding a first quantity of data that is

12   encoded using an error-correcting code and that

13   spans multiple tracks from the plurality of tracks;

14   writing to the correction history record to

15   indicate which of the multiple tracks contained

16   errors when the first quantity of data was decoded;

17   and

18   decoding a second quantity of data that is

19   encoded using the error-correcting code and that

20   spans the multiple tracks, wherein a limited number

21   of the multiple tracks are decoded as erasures in

22   accordance with the correction history record.

1   16.   The data processing system of claim 15, wherein the

2   processing unit executes the set of instructions to

3   perform the additional act of:

4   establishing a correction history record.

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1   17.   The data processing system of claim 15, wherein the
2   error correcting code is a Bose-Chauduri-Hocquenghem
3   (BCH) code.

1   18.   The data processing system of claim 17, wherein the
2   Bose-Chauduri-Hocquenghem code is a Reed-Solomon code.

1   19.   The data processing system of claim 15, wherein the
2   data storage medium is magnetic tape.

1   20.   The data processing system of claim 15, wherein the
2   processing unit executes the set of instructions to
3   perform the additional acts of:
4   calculating a weight for each of the multiple
5   tracks, based upon the correction history record; and
6   selecting the limited number of the multiple tracks
7   to be treated as erasures based upon the calculated
8   weight for each of the multiple tracks.

1   21.   The data processing system of claim 20, wherein the
2   processing unit executes the set of instructions to
3   perform the additional acts of:
4   examining the correction history record to determine
5   a number of times errors have been found on each of the
6   multiple tracks; and
7   calculating the weight for each of the multiple
8   tracks as a function of the number of times errors have
9   been found on each of the multiple tracks.

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1 22. The data processing of claim 15, wherein the data
2 processing system is connected to a data storage device.

1 23. The data processing system of claim 15, wherein the
2 data processing system is embedded within a data storage
3 device and the data storage device reads the data storage
4 medium.

1 24. The data processing system of claim 23, wherein the
2 data storage device reads the data storage medium.